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Roswell Daily Record
"Harassed Rancher Who Located 'Saucer' Sorry He Told About It"
[July 9, 1947]

Harassed Rancher who Located 'Saucer' Sorry He Told About It

W. W. Brazel, 48, Lincoln county rancher living 30 miles south east of Corona, today told his story of finding what the army at first described as a flying disk, but the publicity which attended his find caused him to add that if he ever found anything else short of a bomb he sure wasn't going to say anything about it.

Brazel was brought here late yesterday by W. E. Whitmore, of radio station KGFL, had his picture taken and gave an interview to the Record and Jason Kellahin, sent here from the Albuquerque bureau of the Associated Press to cover the story. The picture he posed for was sent out over AP telephoto wire sending machine specially set up in the Record office by R. D. Adair, AP wire chief sent here from Albuquerque for the sole purpose of getting out his picture and that of sheriff George Wilcox, to whom Brazel originally gave the information of his find.

Brazel related that on June 14 he and an 8-year old son, Vernon were about 7 or 8 miles from the ranch house of the J. B. Foster ranch, which he operates, when they came upon a large area of bright wreckage made up on rubber strips, tinfoil, a rather tough paper and sticks.

At the time Brazel was in a hurry to get his round made and he did not pay much attention to it. But he did remark about what he had seen and on July 4 he, his wife, Vernon and a daughter Betty, age 14, went back to the spot and gathered up quite a bit of the debris.

The next day he first heard about the flying disks, and he wondered if what he had found might be the remnants of one of these.

Monday he came to town to sell some wool and while here he went to see sheriff George Wilcox and "whispered kinda confidential like" that he might have found a flying disk.

Wilcox got in touch with the Roswell Army Air Field and Maj. Jesse A. Marcel and a man in plain clothes accompanied him home, where they picked up the rest of the pieces of the "disk" and went to his home to try to reconstruct it.

According to Brazel they simply could not reconstruct it at all. They tried to make a kite out of it, but could not do that and could not find any way to put it back together so that it would fit.

Then Major Marcel brought it to Roswell and that was the last he heard of it until the story broke that he had found a flying disk.

Brazel said that he did not see it fall from the sky and did not see it before it was torn up, so he did not know the size or shape it might have been, but he thought it might have been about as large as a table top. The balloon which held it up, if that was how it worked, must have been about 12 feet long, he felt, measuring the distance by the size of the room in which he sat. The rubber was smoky gray in color and scattered over an area about 200 yards in diameter.

When the debris was gathered up the tinfoil, paper, tape, and sticks made a bundle about three feet long and 7 or 8 inches thick, while the rubber made a bundle about 18 or 20 inches long and about 8 inches thick. In all, he estimated, the entire lot would have weighed maybe five pounds.

There was no sign of any metal in the area which might have been used for an engine and no sign of any propellers of any kind, although at least one paper fin had been glued onto some of the tinfoil.

There were no words to be found anywhere on the instrument, although there were letters on some of the parts. Considerable scotch tape and some tape with flowers printed upon it had been used in the construction.

No strings or wire were to be found but there were some eyelets in the paper to indicate that some sort of attachment may have been used.

Brazel said that he had previously found two weather observation balloons on the ranch, but that what he found this time did not in any way resemble either of these.

"I am sure what I found was not any weather observation balloon," he said. "But if I find anything else besides a bomb they are going to have a hard time getting me to say anything about it."

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Interview
Col Richard L. Weaver with Lt Col
Sheridan Cavitt, USAF (Ret)
May 24, 1994

Same as
Weaver Attachment 18

3

Interview
Lt Col Joseph V. Rogan with Irving Newton
July 21, 1994

Same as
Weaver Attachment 30

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Letter
Lt Col Edward A. Doty to Mr David Bushnell
March 3, 1959

3 March 1959

Mr. David Bushnell
MDNH
Air Force Missile Development Center
Holloman Air Force Base, New Mexico

Dear Mr. Bushnell:

It has taken me much too long in answering your inquiries of 9 October 1958 but I hope this information will be of some value to you in preparing a history of balloon operations at Holloman. Thanks also for the three reports which you sent me.

Answering your specific questions, my EDCMR to Holloman was 20 January 1948. I reported in about 1 February 1948. I immediately joined the Electronic and Atmospheric Projects Section and remained in this same basic organization through its various name changes for my entire tour at Holloman.

I attended the January 1950 Class at the Air Tactical School, Tryndall Air Force Base, Florida for sixteen (16) weeks and returned to Holloman by 15 May.

On 31 July 1950 I was assigned Chief, Geophysical Research Unit, (Balloon) Electronics and Atmospheric Branch, Technical Operations Section, O&P on Special Orders No. 152, par 24. This, I believe, was the first balloon organization. On 29 May 1951, S.O. No. 111, par 8 redesignated me without change of assignment as Chief, Balloon Atmospheric Unit, Electronics and Atmospheric Branch; Development and Test Section Base Directorate, Technical Operations. Then in S.O. No. 98, 13 November 1951, par 11, I was Chief, Balloon Sonde Sub-Unit, Electronics and Atmospheric Unit, Development and Test Section, Operations.

I was never the Holloman Base Weather Officer. Lt Colonel Maas was assigned as Base Weather Officer and as head of the E&A organization as a dual assignment for a while.

There was a continuity of organization from the earliest balloon activities up to the present. The name changed but the group continued . The radar research activities, the Aerobee rocket atmospheric investigations and the balloon activities were sponsored originally by the Air Force Cambridge Research Center and were administered in a single organisation up through the time I left Holloman.

When I first arrived at Holloman, a New York University group under Mr. C. B. Moore with a AFCRC contract had been launching 20 foot plastic balloons since June 1947 from the North area. I began as their project officer.

I hope this has been of some use to you.

Sincerely,

EDWARD A. DOTY
Lt Colonel, USAF

Hq USAF AFDRD-ER

5

Letter
Brig Gen E. O'Donnell to
Commanding General, USAAF
Subj: Change in Classification of
MOGUL, Item 188–5
July 8, 1946

Included in
Weaver Attachment 19

6

Report
Maurice Ewing for General Carl Spaatz
"Long Range Sound Transmission in the Atmosphere"
n.d.

LONG RANGE SOUND TRANSMISSION IN THE ATMOSPHERE

A Report for General Carl Spaatz

prepared by Maurice Ewing

I THE SOUND CHANNEL IN THE OCEAN

Under a contract with the Bureau of Ships, we have proved that there is a sound channel in the ocean with its axis at a depth of about 4000 feet. Confirming a prediction made by the writer, a four pound bomb fired at this depth has been heard at a distance of 2300 miles, using a hydrophone at the same depth as a receiver. This range enormously exceeds anything before achieved, and is possible primarily because the source and the receiver are placed at the most advantageous depth. The signal strength indicates that far greater ranges can be obtained without change of equipment.

At a typical place in the ocean, the speed of sound at the surface is 5001 ft/sec. It decreases to 4888 ft/sec at a depth of 4000 feet, and then increases to 5065 ft/sec at a depth of 16,200 feet. This situation is described as a sound channel with its axis at 4000 feet, because all sound rays are deflected downward at points above the axis and upward at points below it. Detailed calculation of the bending of the ray paths due to pressure and temperature shows that all rays leaving a sound source on the axis in directions within 12° of the horizontal are refracted back and forth across the axis and can travel unlimited distances without contact with surface or bottom, hence the long ranges. A similar calculation for a sound source near the surface shows that all rays must be reflected at surface and bottom many times in the course of a few hundred miles, hence the limited range of detection of ordinary shallow explosions, and the occurence of skip distances.

The sound from an explosion at the axis of the sound channel has a duration of about 12 seconds per thousand miles of travel, and an unmistakable pattern of a gradual building up to maximum intensity with a very sharp cut-off. This last feature is of great importance because it permits accurate triangulation with a network of three listening stations, the rate of transmission being about one mile per second.

(Reference 1)

II EXISTENCE OF A SOUND CHANNEL IN THE ATMOSPHERE

In September, 1944, it occurred to me that there is a similar sound channel in the atmosphere with the axis at a height of about 45,000 feet, and that, with source and receiver placed at this height, we might exceed the accepted ranges as enormously as we had in the ocean. In other words, it might be possible to detect sound half way around the world.

The fundamental data on this subject as revealed during a hurried search of the literature (mostly prior to 1930), show that, for a typical large explosion, there is audibility from 0 to 25 miles and from 90 to 125 miles, with a zone of silence from 25 to 90 miles. The accepted explanation of the total collection of these data is that the speed of sound decreases from about 1090 ft/sec at the surface to about 970 ft/sec at about 45,000 feet, and then increases to about 1165 ft/sec at about 130,000 feet. (Reference 2)

Thus there is a sound channel in the atmosphere with its axis at a height of about 45,000 feet, and if both sound source and receiver are located at this height, we may expect extraordinary ranges and all the other useful phenomena which have been found in the sound channel in the ocean. This means that the signals will have highly characteristic identifying features and that they will permit accurate triangulation.

III PROBABLE MAXIMUM RANGE

The maximum range for sonic signalling in the atmospheric sound channel will depend primarily on the absorption coefficient, which is the rate at which the acoustical energy is converted into heat by frictional losses. Following Rayleigh (Reference 3, p. 316), it may be calculated that the distance at which sound of frequency 50 cycles per second would be reduced in intensity by the factor 7.5 by the effect of friction alone is about 24,000 miles at sea level, and about 4500 miles at 45,000 feet. As these distances are inversely proportional to the square of the frequency, they would be one hundred times greater for sounds of frequency 5 cycles per second, which have often been observed when large explosions were studied.

It is impossible to make really detailed calculations of the maximum range without better information about temperature and sound velocity in locations from 45,000 to 90,000 feet, for it is there that the greatest frictional losses will occur. However, it is safe to predict that a bomb containing a few pounds of TNT can be heard from 4000 to 5000 miles. The chance that it could be heard to the farthest point on earth is worth consideration.

IV PROPOSED MILITARY USE OF ATMOSPHERIC SOUND CHANNEL

It is my belief that a large rocket or jet propulsion motor passing the axis of the sound channel would also be detectable by listening at several thousand miles, and subject to location by triangulation if heard by three suitably chosen stations. In time of war this triangulation could locate the launching sites of the enemy, and in peace time it is conceivable that suitably chosen listening stations could monitor the entire world to detect and locate any unusual rocket or jet propulsion experiments, thus minimizing the danger of surprise attacks with secret weapons.

V TYPES OF LISTENING STATION

The most promising types of listening station according to my present knowledge would make use either of the higher mountains of the world or of free balloons to gain adequate height. It is unknown at present by how far the receiver may be removed from the preferred height without prohibitive sacrifice of sound channel properties. However, in the submarine sound channel we have had fairly good reception with the hydrophone at 2000 feet when the axis of the channel was at 4000 feet. Hence, it is not beyond reason that the taller mountains might provide sufficient altitude of themselves.

Small stratosphere balloons provided with radio means for transmission of sound impulses to a receiving station either fixed or mobile, probably provide the most readily available listening arrangment.

VI PRELIMINARY INVESTIGATIONS RECOMMENDED

a) Canvas published literature for such further information as can be gleaned from sound transmission between source and receiver at the earth's surface about variation of sound velocity and sound absorption with altitude. Also canvas meteorological literature for better information about the stratosphere.

b) Assign an officer to search confidential publications on sound ranging and other related subjects for relevant information. This officer should also collect data on sound ranging equipment and personnel in the army which could be assembled for a preliminary test.

c) Make a preliminary measurement using about three sound ranging units on ground as receivers, and bombs dropped or rockets fired upward from a high flying plane, or anti-aircraft shells sent as high as possible as sources. This will not be true sound channel transmission, but rather a refinement of the data collected from audibility of large explosions. By proper interpretation of records from bombs exploded at intervals of a few miles out to 400 or 500 miles, all of the basic information will be made available. By use of techniques which I have used for years on sound transmission through ground and through water, it is possible to calculate the path followed by each sound ray, to find its highest ascent into the stratosphere, and to determine the coefficient of sound absorption.

d) A study of existing publications should be made to determine the sound production of typical rocket and jet propulsion units in order to have data about the intensity and the frequency distribution of these sources for ultimate estimates of sound channel range.

If these data do not exist, experiments should be made to produce them, for they would certainly be of use in other connections.

e) An estimate of the background noise to be expected at the axis of the sound channel should be made. In my opinion, the principal contributors will be meteors, possibly high-flying normal air traffic, lightning, and anti-aircraft type artillery fire. A considerable body of information could be collected on this subject without experimentation.

My opinion is that the background noise will not be seriously high unless normal traffic begins to reach such heights that it will create the same type of disturbance as the projectiles which we are considering.

f) Measurements of actual sound channel transmission using a small stratosphere balloon carrying sound receivers and a radio for transmission of sound signals to a recording station should be the next step in this investigation.

VII CONCLUSIONS

It is my opinion that the stratosphere sound channel should be investigated, for it has the potentiality of military importance. I believe that its military importance depends greatly upon secrecy and that the investigation should be started in a quiet way, restricting knowledge of the purpose of the work to the smallest possible group.

VIII REFERENCES

1. Interim Report No. 1 Long Range Sound Transmission, by Maurice Ewing and J. L. Worzel, Contract NObs-2083, Bureau of Ships, Navy Department, 1946.

2. Handbuch der Experimentalphysik, by C. Meisser, pp 211-251, XXV, 3 Teil Luftseismik, Wien & Harms, Leipzig, 1930.

3. Theory of Sound, by Lord Rayleigh, vol. II, pp. 316-17, Macmillan & Co., London, 1926.